

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference SF-1074		FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/JP2004/011017		International filing date (day/month/year) 27.07.2004		Priority date (day/month/year) 31.07.2003
International Patent Classification (IPC) or national classification and IPC C07C263/18, C07C265/04				
Applicant SHOWA DENKO K.K.				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input checked="" type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand 20.01.2005		Date of completion of this report 27.09.2005		
Name and mailing address of the international preliminary examining authority:  European Patent Office - Gitschiner Str. 103 D-10958 Berlin Tel. +49 30 25901 - 0 Fax: +49 30 25901 - 840		Authorized Officer Rufet, J Telephone No. +49 30 25901-		



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/JP2004/011017

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-22 as originally filed

Claims, Numbers

1-17 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing *(specify)*:
 - ☐ any table(s) related to sequence listing *(specify)*:
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing *(specify)*:
 - ☐ any table(s) related to sequence listing *(specify)*:

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
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Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:
- ☐ the entire international application,
 - ☒ claims Nos. 1-5,7-10,12-15,17 all partly
because:
 - ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):
 - ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
 - ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
 - ☒ no international search report has been established for the said claims Nos. 1-5,7-10,12-15,17 all partly
 - ☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
 - the written form ☐ has not been furnished
 - ☐ does not comply with the standard
 - the computer readable form ☐ has not been furnished
 - ☐ does not comply with the standard
 - ☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.
 - ☐ See separate sheet for further details .

**INTERNATIONAL PRELIMINARY REPORT
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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	6,7,11,16
	No: Claims	1-5,8-10,12-15,17
Inventive step (IS)	Yes: Claims	
	No: Claims	1-17
Industrial applicability (IA)	Yes: Claims	1-17
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item III.

Present claims 1-5, 7-10, 12-15, 17 relate to an extremely large number of possible processes, due to the use of the vague expression "a dissolved acidic gas". Support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT is to be found, however, for only a very small proportion of the processes claimed. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful examination over the whole of the scope is impossible.

The international search report has not been established for the part of claims 1-5, 7-10, 12-15, 17 which appear not to be supported and disclosed.

Consequently, the examination has only been carried out for those parts of claims which appear to be supported and disclosed (Art. 34(4)(a)(ii) PCT) and which have been searched (Rule 66.1(e) PCT), namely those parts relating to the processes according to claims 1-17 wherein the "dissolved acidic gas" is selected from carbon dioxide, sulfur dioxide or nitrogen monoxide according to page 10, I. 19-20 of the description.

Re Item V.

1. The following documents are referred to in this communication:

D1: DE 32 25 247 A

D2: DATABASE WPI, AN 1982-61474E; JP 59 007147 A

D3: DATABASE WPI, AN 1990-214434; JP 02 145555 A

D4: US-A-3247236

2. Novelty

2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-5, 8-10, 12-15, 17 is in view of the teaching of D1-D3 not new in the sense of Article 33(2) PCT. Documents D1-D3 disclose stabilized (meth)acryloyloxyalkyl isocyanate obtained by using nitrogen oxide or sulfur dioxide gas during distillation (see D1, p. 5-10, claims; D2, abstract; D3 abstract).

2.2 Document D2 refers to the use of carbon dioxide or sulfur dioxide gas for stabilizing organic isocyanate compounds, whereby (meth)acryloyloxyalkyl isocyanate are not mentioned. The claimed subject-matter is therefore considered to be novel over D4.

3. Inventive step

The subject-matter of claims 6, 11 and 16 is in view of the technical teaching of the prior art documents D1-D3 in combination with D4 considered as obvious for a skilled person for the following reasons:

Starting from the equally closest prior art documents D1, D2 or D3, the problem underlying the present invention is to be seen in the provision of a further process for stabilizing (meth)acryloyloxyalkyl isocyanate compounds.

The proposed solution according to claims 6, 10 and 11 is to dissolved carbon dioxide in the (meth)acryloyloxyalkyl isocyanate instead of nitrogen oxide or sulfur dioxide as disclosed in D1-D3.

From the teaching of D4 the skilled person knows already that sulfur dioxide and carbon dioxide are equally effective for stabilizing liquid organic isocyanates (see D4, column 1, l. 55-64). The skilled person would have therefore, with expectation of success, considered to replace sulfur dioxide by carbon dioxide in the processes of D1, D2 or D3 as an alternative, if he wanted to provide a further process for stabilizing (meth)acryloyloxyalkyl isocyanate compounds.

Consequently the subject-matter of claims 6, 10 and 11 does not meet the criteria of Article 33(3) PCT.

Re Item VIII.

1. it is stressed that an unclear expression like "dissolved acidic gas" cannot be allowed in a claim if the term is essential having regard to the invention, which is the case in present claim 1, contrary to the requirements of Art. 6 PCT. Equally, an unclear term cannot be used by the applicant to distinguish his invention from the prior art.

2. Claim 8 does not meet the requirements of Article 6 PCT in that the matter for which protection is sought is not clearly defined. The claim attempts to define the subject-matter in terms of the result to be achieved (due to the expression "forcedly dissolving"), which merely amounts to a statement of the underlying problem, without providing the technical features necessary for achieving this result.

3. Claims 13-17 are considered to be redundant in view of claims 8-12, because the expression "a process for stabilizing a (meth)acryloyloxyalkyl isocyanate" of claims 8-12 and the expression "a process for preparing a stabilized (meth)acryloyloxyalkyl isocyanate" of claims 13-17 are equivalent.